



## CONTROL VALVES

- Electric and pneumatic control valves (heat control)
- Electric and pneumatic control valves (refrigeration)
- Shut-off valves
- Three way control valves
- Flow-control silencers
- RTK – Heavy duty control valves
- Electric control valves with fail closed unit
- Steam converting valves
- Multi nozzle lancer desuperheaters
- Feed-water control valves with re-circulation connection
- Continuous blow down valves
- Bottom blow down valves
- Valves for discharge / re-circulation control



MV 5211



PV 6221

### Electric series

**With electric actuators**  
REact 15E  
ST 5112

MV 5211  
MV 5214  
MV 5221  
MV 5224  
MV 5231  
MV 5234

### Pneumatic series

**With pneumatic actuators**  
ST 6115  
ST 6135

PV 6211  
PV 6214  
PV 6221  
PV 6224  
PV 6231  
PV 6234

**With  
Bellows seal**

–  
yes  
–  
yes  
–  
yes

## Technical data

	DIN	ANSI
<b>Nominal diameter</b>	DN 15 ... 100	NPS ½" ... 4"
<b>Nominal pressure</b>	PN 16 ... 160	Class 150 ... 900
<b>Body materials</b>	EN-GJL-250 (PN 16) EN-GJS-400-18-LT (PN 16; 25) GP240GH (PN 16 ... 160) G17CrMo5-5 (PN 63 ... 160) GX5CrNiMo19-11-2 (PN 16 ... 40) Other materials available on request	SA216 WCB SA351 CF8M SA217 WC9
<b>Flanges</b>	According to DIN 2501; EN 1092-1 and EN 1092-2 Different flanges on request	ASME B16.5
<b>Butt Weld ends</b>	According to DIN 3239 – part 1 or EN 12627 Edge form DIN 2559-21 (Others on request) End connection P235GH for body material GP-240 GH End connection 13CrMo4-5 for body material G 17 CrMo 5-5	
<b>Stem packing</b>	Chevron rings PTFE-graphite Stuffing box pure graphite Bellows seal with safety stuffing box Stem packing with DVGW-Approval Stem packing for oxygen with BAM approval	(max. 250 °C) (max. 530 °C medium dependent) (max. 350 °C) (max. 6 bar, 60 °C) (max. 50 °C)
<b>Trim variations</b>	Shut-off plug 1.4122 Parabolic plug 1.4122 V-port plug 1.4122, Full stellit, Ferro Titanium Perforated plug 1.4122, 1.4122 hardened Mixing- / Diverting plug 1.4122, 1.4408 Soft seat PTFE-graphite Seat 1.4571, Stellit Stem 1.4571 Others on request	(none) (equal% / linear) (linear) (equal% / linear) (linear)
<b>Version for refrigerants</b>	Chevron packing rings NBR Chevron rings PTFE-graphite Seals (gaskets) suitable for refrigerants Bellows seal with safety stuffing box Stem heater with glycerine cup, free from non-ferrous metals Bonnet studs and nuts in stainless steel Epoxy coating Flanges with groove	(-60 °C to 100 °C) (-60 °C to 250 °C)
<b>Seat leakage</b>	According to DIN EN 1349, Class IV Class IV-S2 according to DIN EN 1349 (lapped in metal to metal) Class VI according to DIN EN 1349 soft seat with PTFE / graphite (max. + 200 °C) According to ANSI / FC / 70-2	
<b>Max. press / temp.</b>	According to DIN EN 1092 / ASME B16.34	
<b>Approvals</b>	ATEX ( PV...) TR TS (MV..., PV..., HV...) DGRL (MV..., PV...) DVGW (on request)	



MV 5174

### Electric series

**With electric actuator  
REact 15E**

**With  
Bellows seal**

MV 5174	yes
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### Motorized control valves for mixing and diverting (up to DN 65) used for thermal oil and other process liquids

- Three-way design with shortened B-flange
- Long life chambered bellows seals with twist lock
- Actuator can be turned as desired for simple operating and cabling

## Technical data

<b>Nominal diameter</b>	DN 50 und 65	
<b>Nominal pressure</b>	PN 16	
<b>Body material</b>	EN-GJS-400-18-LT	
<b>Flanges</b>	According to DIN EN 1092-2 Different flanges on request	
<b>Stem packing</b>	Metal bellow seal with safety stuffing box	(max. 350 °C)
<b>Trim variations</b>	Mixing plug 1.4122 Bellow + Stem 1.4571 Seat 1.4571 Others on request	(linear) (AISI 316 Ti) (AISI A316 Ti)
<b>Seat leakage</b>	According to DIN EN 1349, Class IV	
<b>Approvals</b>	DGRL	



**REact**



**Electric series**

**With electric actuators**

REact 15E  
ST 5112

**Pneumatic series**

**With pneumatic actuators**

ST 6115  
ST 6135

**With  
Bellows seal**

MV 5271

PV 6271

–

MV 5274

PV 6274

yes

**Technical data**

<b>Nominal diameter</b>	DN 20 ... 100	
<b>Nominal pressure</b>	PN 16, 25	
<b>Body materials</b>	EN-GJL-250	(max. PN 16)
	EN-GJS-400-18-LT	(max. PN 25)
<b>Flanges</b>	Connection according to DIN 2501 Facing DIN 2526 Form C Connection according to DIN EN 1092 Different flanges on request	
<b>Stem packing</b>	Chevron rings PTFE-graphite	(max. 250 °C)
	Bellow seal with safety stuffing box	(max. 350 °C)
<b>Trim variations</b>	Mixing plug 1.4122 / 1.4408	(linear)
	Stem + Seat 1.4571	
	Others on request	
<b>Seat leakage</b>	According to DIN EN 1349, Class IV Class IV-S2 according to DIN EN 1349 (lapped in metal to metal)	
<b>Approvals</b>	ATEX ( PV...) TR TS (MV..., PV...) DGRL (MV..., PV...)	



MV 5311



PV 6321



PV 6314

**Electric series**

**With electric actuators**  
ST 5113  
ST 5114

**Pneumatic series**

**With pneumatic actuators**  
ST 6160

**With  
Bellows seal**

**With  
Bellows seal  
PN100**

MV 5311	PV 6311	–	–
MV 5314	PV 6314	yes	yes
MV 5321	PV 6321	–	–
MV 5324	PV 6324	yes	–
MV 5331	PV 6331	–	–
MV 5334	PV 6334	yes	–



## Technical data

	DIN	ANSI
<b>Nominal diameter</b>	DN 15 ... 150	NPS ½" ... 6"
<b>Nominal pressure</b>	PN 16 ... 160	Class 150 ... 900
<b>Body materials</b>	EN-GJL-250 (PN 16) EN-GJS-400-18-LT (PN 16; 25) GP240GH (PN 16 ... 160) G17CrMo5-5 (PN 63 ... 160) GX5CrNiMo19-11-2 (PN 16 ... 40) Other materials available on request	SA216 WCB SA351 CF8M SA217 WC9
<b>Flanges</b>	According to DIN 2501; EN 1092-1 and EN 1092-2 Different flanges on request	ASME B16.5
<b>Butt weld ends</b>	According to DIN 3239 – part 1 or EN 12627 Edge form DIN 2559-21 (Others on request) End connection P235GH for body material GP-240 GH End connection 13CrMo4-5 for body material G 17 CrMo 5-5	
<b>Stem packing</b>	Chevron rings PTFE-graphite Stuffing box pure graphite Bellows seal with safety stuffing box With TA-Luft Stem packing with DVGW-Approval Stem packing for oxygen with BAM approval	(max. 250 °C) (max. 530 °C medium dependent) (max. 350 °C PN 100 up to DN 40) (max. 400 °C) (6 bar, 60 °C) (max. 50 °C)
<b>Trim variations</b>	Shut-off plug 1.4122 Parabolic plug 1.4122 V-port plug 1.4122, Full stellite, Ferro Titanium Perforated plug 1.4122, 1.4122 hardened Mixing- / Diverting plug 1.4122, 1.4408 Balanced plug Soft seat PTFE-graphite Seat 1.4571, Stellite Stem 1.4571 Others on request	(none) (equal% / linear) (linear) (equal% / linear) (linear) (equal% / linear)
<b>Version for refrigerants</b>	Chevron packing rings NBR Chevron rings PTFE-graphite Seals (gaskets) suitable for refrigerants Bellows seal with safety stuffing box Stem heater with glycerine cup, free from non-ferrous metals Bonnet studs and nuts in stainless steel Epoxy coating Flanges with groove	(-60 °C to 100 °C) (-60 °C to 250 °C)
<b>Seat leakage</b>	According to DIN EN 1349, Class IV Class IV-S2 according to DIN EN 1349 (lapped in metal to metal) Class VI according to DIN EN 1349 soft seat with PTFE / graphite (max. + 200 °C) According to ANSI / FC / 70-2	
<b>Max. press / temp.</b>	According to DIN EN 1092 / 15 ASME B16.34	
<b>Approvals</b>	ATEX ( PV...) TR TS (MV..., PV..., HV...) DGRL (MV..., PV...) DVGW (on request)	



MV 5411



MV 5421



PV 6411

### Electric series

**With electric actuators**  
ST 5106  
ST 5116

MV 5411  
MV 5414  
MV 5421  
MV 5424  
MV 5431  
MV 5434

### Pneumatic series

**With pneumatic actuators**  
ST 6175

PV 6411  
PV 6414  
PV 6421  
PV 6424  
PV 6431  
PV 6434

**With  
Bellows seal**

–  
yes  
–  
yes  
–  
yes

## Technical data

	DIN	ANSI
<b>Nominal diameter</b>	DN 40 ... 400	NPS 1 1/2" ... 12"
<b>Nominal pressure</b>	PN 16 ... 160	Class 150 ... 900
<b>Body materials</b>	EN-GJL-250 (PN 16) EN-GJS-400-18-LT (PN 16; 25) GP240GH (PN 16 ... 160) G17CrMo5-5 (PN 63 ... 160) GX5CrNiMo19-11-2 (PN 16 ... 40) Other materials available on request	SA216 WCB SA351 CF8M SA217 WC9
<b>Flanges</b>	According to DIN 2501; EN 1092-1 and EN 1092-2 Different flanges on request	ASME B 16.5
<b>Butt weld ends</b>	According to DIN 3239 – part 1 or EN 12627 Edge form DIN 2559-21 (Others on request) End connection P235GH for body material GP-240 GH End connection 13CrMo4-5 for body material G 17 CrMo 5-5	
<b>Stem packing</b>	Chevron rings PTFE-graphite Stuffing box pure graphite Bellows seal with safety stuffing box Stem packing with DVGW-Approval Stem packing for oxygen with BAM approval	(max. 250 °C) (max. 530 °C medium dependent) (max. 350 °C) (6 bar, 60 °C) (max. 50 °C)
<b>Trim variations</b>	Shut-off plug 1.4122 Parabolic plug 1.4122 / 1.4571 V-port plug 1.4122, Full stellit, Ferro Titanium Perforated plug 1.4122, 1.4122 hardened Mixing- / Diverting plug 1.4122, 1.4408 Soft seat PTFE-graphite Seat 1.4571, Stellit Stem 1.4571 Others on request	(none) (equal% / linear) (linear) (equal% / linear) (linear)
<b>Version for refrigerants</b>	Chevron packing rings NBR Chevron rings PTFE-graphite Seals (gaskets) suitable for refrigerants Bellows seal with safety stuffing box Stem heater with glycerine cup, free from non-ferrous metals Bonnet studs and nuts in stainless steel Epoxy coating Flanges with groove	(-60 °C to 100 °C) (-60 °C to 250 °C)
<b>Seat leakage</b>	According to DIN EN 1349, Class IV Class IV-S2 according to DIN EN 1349 (lapped in metal to metal) Class VI according to DIN EN 1349 soft seat with PTFE / graphite (max. + 200 °C) According to ANSI / FC / 70-2	
<b>Max. press / temp.</b>	According to DIN EN 1092 / 15 ASME B16.34	
<b>Approvals</b>	ATEX ( PV...) TR TS (MV..., PV..., HV...) DGRL (MV..., PV...) DVGW (on request)	



SL Type-B

## SL-Type

**For liquid media**

**For gases  
and vapours**

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SL Type A

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SL Type B

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**Flow-control silencer / expansion after control valves to reduce noise after choked flow of gases and vapours. In order to largely suppress cavitation / evaporation in liquid media and sound reduction.**

- Suitable for operating temperatures up to 530 ° C
- System of two to four throttle plates
- Including pipe expansion
- Supplied ready to fit including the connecting elements

## Technical data

### Inlet and outlet

PN 40 ... 160, Class 300 ... 900

Different nominal pressure ranges for inlet and outlet on request

### Materials

P250GH (PN 40 ... 160)

Equivalent to A105 (Class 300 ... 900)

1.4571 (PN 40 ... 160)

Equivalent to A316Ti (Class 300 ... 900)

13CrMo4-5 (PN 63 ... 160)

Equivalent to A355 (Class 600 ... 900)

Others on request

### Flanges

Connection to EN 1092 form B1

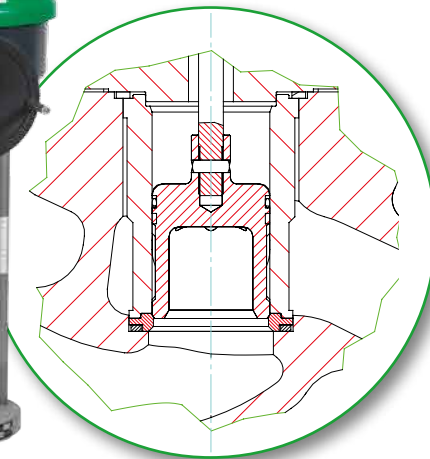
Connection to ASME B 16.5



PV 6311-AD



MV 5311-AD



**Electric series**

**With electric actuators**

- ST 5113
- ST 5114
- ST 5106
- ST 5116

MV 5311-AD

MV 5411-AD

**Pneumatic series**

**With pneumatic actuators**

- ST 6135
- ST 6160
- ST 6175

PV 6311-AD

PV 6411-AD

**All-purpose cage guided globe control valve**

- High flow capacities provide larger flow area, reduced body velocity and pressure loss
- Yoke lock nut guarantees easy disassembly
- Hardened / Stainless steel trim provides twice the service life of 316 stainless trim
- Cup seal with three times the wear surface of competitive valves for long lasting leak tight seal
- Multiple cage options for maximum versatility
- Balanced plug design provides smooth high pressure control
- Ultra compact actuators install in tight spaces
- Tighter shut-off design provides exceptional performance up to Class VI
- Compact actuators can easily be installed in tight spaces

## Technical data



<b>Body Assembly</b>	Style: Single seated, top entry bolted bonnet, globe style body, cage guided balanced plug	
<b>Nominal diameter</b>	NPS 2" ... 16"	
<b>Nominal pressure</b>	ANSI 150 ... 1500	2" – 8"
	ANSI 150 ... 600	10" – 16"
<b>Body material</b>	Carbon steel, ASTM A216 Gr WCC Chrome moly, ASTM A217 Gr WC9 Stainless steel, ASTM Gr CF8M	
<b>Butt weld ends</b>	RF, RTJ, BWE (NPT, SWE nur 2")	
<b>Stem packing</b>	PTFE V-Rings	(-29 °C to 230 °C)
	Laminated graphite	(-29 °C to 566 °C)
<b>Trim Types</b>	Standard, Les-Cav I+II, Les-Sonic I+II	
<b>Flow Characteristics</b>	Equal percentage, Linear	
<b>Trim Materials</b>	Martensitic (series 400) / austenitic (series 300) Standard and high temperature versions	
<b>Trim Sizes</b>	Full port, 80 %, 60 % and 40 % reduced Custom, contact application engineering	
<b>Kvs values</b>	24 – 2666 m <sup>3</sup> / h	
<b>Plug Seal Materials</b>	C300 spring loaded seal with Inconel spring Class IV or V	(max. 300 °C)
	Double carbon-graphite seal rings Leakage Class IV	(max. 538 °C)
<b>Shutoff Class</b>	According ANSI / ISA 70-2	
	Standard trim Leakage Class V	(-29 to 300 °C)
	Leakage Class IV	(-29 to 427 °C)
	Standard trim Leakage Class IV	(-29 to 538 °C)
<b>Actuators</b>	Spring and diaphragm 280, 530 or 1000 cm <sup>2</sup> actuator Spring closed or spring open Electric Optional: piston, double acting / spring return	



MV 5300

## Electric series

### With electric actuators      Actuators

MV 52 ...	Approved by German Technical Inspectorate	ST 5112 ST 6151-5	
MV 53 ...	Approved by German Technical Inspectorate	ST 5113 ST 6151-5	
MV 53 ...		ST 5113 ST 6151-6 ST 5114 ST 6151-6	
MV 54 ...		ST 5106 ST 6152-1 ST 5116 ST 6152-1	

### Fail close unit for motorized valves MV 52 ... / MV 53 ... / MV 54 ... series 2 way or 3 way design

- Approved by German Technical Inspectorate DIN EN 14597:2005-12 as safety functional device for steam and water in heating systems.  
(Valid only in combination with ST 6151-5)
- Valve closes on loss of power
- Closes smoothly even at large differential pressures
- Adjustable closing time for ST 6152-1
- Automatic return to normal operation possible



**Technical data**

<b>Nominal diameter</b>	DN 15 ... 100	(Series MV 52 ...)
	DN 15 ... 150	(Series MV 53 ...)
	DN 40 ... 250	(Series MV 54 ...)
<b>Nominal pressure</b>	PN 16 ... 160	
<b>Stem packing</b>	Chevron rings PTFE-graphite	(max. 250 °C)
	Bellows seal with safety stuffing box	(max. 300 °C)
<b>Trim variations</b>	V-port plug	(linear)
	Perforated plug	(equal% / linear)
<b>Seat leakage</b>	Class IV according to DIN EN 1349	
	Class IV-S2 according to DIN EN 1349 (lapped in metal to metal)	



PV 6451



### Electric series

#### With electric actuators

ST 5113  
ST 5114  
ST 5106  
ST 5116

### Pneumatic series

#### With pneumatic actuators

ST 6160  
ST 6175

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MV 5351

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PV 6351

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MV 5451

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PV 6451

**Steam-converting valves used to reduce the steam pressure while simultaneously cooling the steam.**

- Steam pressure reduction and cooling in one unit
- Low-noise Perforated plug
- Water injection from below
- Wide control range
- Optimized control characteristic with adapted trim for steam and water

**Technical data**

<b>Nominal diameter</b>	DN 40 ... 250	
<b>Nominal pressure</b>	PN 16 ... 100	
<b>Body materials</b>	GP240GH	(PN 16 ... 100)
	G17CrMo5-5	(PN 63 ... 100)
<b>Flanges</b>	According to DIN 2501; EN 1092-1 and EN 1092-2 Different flanges on request	
<b>Stem packing</b>	Chevron rings PTFE-graphite	(max. 250 °C)
	Stuffing box pure graphite	(max. 530 °C)
<b>Trim variations</b>	Perforated plug 1.4122, 1.4122 hardened Stem + Seat 1.4571 Stellited seat Others on request	(equal% / linear)
<b>Seat leakage</b>	According to DIN EN 1349, Class IV Class IV-S2 according to DIN EN 1349 (lapped in metal to metal)	
<b>Max. press / temp.</b>	According to DIN EN 1092	
<b>Approvals</b>	ATEX ( PV...) TR TS (MV..., PV...) DGRL (MV..., PV...)	



**Electric series**

**With electric actuators**  
ST 5106  
ST 5116

MDK 5351  
MDK 5451

**Pneumatic series**

**With pneumatic actuators**  
ST 6175

PDK 6351  
PDK 6451

**Injection cooler – Desuperheated steam cooler**

- Selectable control characteristics
- Precise steam temperature control
- Turndown 30:1
- Optimum atomization at  $\Delta P$  5 bar
- Tight shut-off.
- Large selection of different Kvs values with special nozzle combinations

## Technical data

### Body materials

A 106 Gr.B (equivalent to P265GH)  
A 335 P11 (equivalent to 13CrMo)

### Flanges

Cooling water inlet flange DN 25 / 40 / 50 (PN 25 ... PN 250)  
Mounting flange DN 80 / 100 (PN 25 ... PN 250)  
Connection Optionsly in DIN or ANSI (On request)  
Minimum inside pipe diameter on mounting flange 80 mm

### Description of function

In cases where steam conditioning valves of the series MV 5X51 or PV 6X51 are only of limited use or can no longer be used due to subcritical steam pressure reduction, or due to very large or very small water requirements (more than 20 % of the steam quantity) the steam temperature can be controlled using a multi nozzle lancer desuperheater after steam pressure reduction. The steam temperature is controlled (at least 5 °K above the saturated steam temperature) by injecting finely atomized cooling water into the superheated steam through an arrangement of nozzles. The amount, size and arrangement of the nozzles is determined by the operating conditions.

Steam temperature is controlled by the positioning of the perforated plug within the nozzle head. As the perforated plug is lifted from the seat, water flows to the nozzles. The unique design of the spray nozzles ensures the formation of a finely atomized hollow spray plug which is readily absorbed into the superheated steam. This guarantees optimum mixing of the cooling water with the superheated steam. By using numerous spray nozzles (the exact number is determined by the operating data) precise steam temperature control is achieved. The Due to the tight shutoff between the plug and seat (lapped in metal to metal) any unwanted dripping from the nozzles is avoided.



MV 5391

## Electric series

### With electric actuators

ST 5112

ST 5113

ST 5114

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MV 5291

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MV 5391

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### Control valve for steam boiler feed-water control systems

- Boiler-feed pump securely protected against falling below the minimum flow rate
- Adjustable re-circulation flow rate
- Perforated plug for feed-water control
- For boiler steam ratings 5 ... 50 t/h

**Technical data**

<b>Nominal diameter</b>	DN 25, 32, 40, 50, 65 und 80
<b>Nominal pressure</b>	PN 40
<b>Body materials</b>	1.0619 / 1.4408
<b>Stem packing</b>	Chevron rings PTFE-graphite (max. 250 °C)
<b>Trim variations</b>	Perforated plug for feed-water and re-circulation (DN 40, DN 50, DN 65 re-circulation adjustable) 1.4122, 1.4122 hardened
<b>Seat leakage</b>	According to DIN EN 1349, Class IV
<b>Max. medium Temperature</b>	200 °C
<b>Max. press / temp.</b>	According to DIN EN 1092
<b>Approvals</b>	ATEX ( PV...) TR TS (MV..., PV..., HV...) DGRL (MV..., PV...) DVGW (on request)



MV 5291-D



PV6291-V

### Electric series

With electric actuators  
REact 15 E

MV 5291-D

MV 5291-V

### Pneumatic series

With pneumatic actuators  
ST 6135

PV 6291-D

PV 6291-V

**Motorized control valves for continuous blow down of steam boilers.**

- Two-way design with / without sample valve
- Durable execution
- Hardened plug and seat for low wear operation
- body material GP-240-GH
- Parabolic plug with linear characteristic for exact dosing of blow down flow rate



## Technical data

<b>Nominal diameter</b>	DN 15, 20, 25, 40
<b>Nominal pressure</b>	PN 40
<b>Body material</b>	GP-240-GH
<b>Stem packing</b>	Chevron rings PTFE-graphite (max. 250 °C)
<b>Trim variations</b>	Parabolic plug
<b>Max. press. / temp.</b>	According to DIN EN 1092
<b>Approvals</b>	ATEX ( PV...) DGRL (MV..., PV...)



PV 6291



HV 6291



Angle valve

### Pneumatic series

**With pneumatic actuator**  
ST 6135

PV 6291

**With Handwheel**

HV 6291

### Bottom blowdown valves for steam boilers

- Maintenance free stem packing
- Clear flow through valve
- Protection of stem packing by back sealing
- Easy replacement of plug
- Reduced susceptibility to water hammer due to bonnet having a smaller cross sectional area
- Guided plug which reduces plug vibration
- Supplied with high quality B7A grooved gaskets

## Technical data

	Two-way design		Angle form	
	DIN	ANSI	DIN	
<b>Nominal diameter</b>	DN 20 ... 65	¾" ... 2 ½"	DN 20 ... 50	
<b>Nominal pressure</b>	PN 40	Class 300	PN 63 ... 160	
<b>Body material</b>	GP240GH	SA216 WCB	GP240GH, Others on request	
<b>Stem packing</b>	Chevron rings PTFE-graphite	(max. 250 °C)	Chevron rings PTFE-graphite	(max. 290 °C)
<b>Trim variations</b>	Shut-off plug Stem + Seat 1.4571		Shut-off plug Stem + Seat	Stellited 1.4571 Stellited
<b>Mounting position</b>	Any			
<b>Max. press / temp.</b>	According to DIN EN 1092			
<b>Options</b>	Solenoid valve with control unit for bottom blowdown valve			
<b>Function HV 6291</b>	The bottom blowdown valve is operated by hand lever The valve closes automatically when the lever is released The valve can be blocked in the open position			
<b>Function PV 6291</b>	The air supply must not exceed 6 bar The bowdown valve must be quickly + fully opened			
<b>Approvals</b>	ATEX ( PV...) DGRL (MV..., PV...)			



### Electric series

#### With electric actuators

ST 5112  
ST 5113  
ST 5114

MV 5241

MV 5341

### Pneumatic series

#### With pneumatic actuators

ST 6135  
ST 6160

PV 6241

PV 6341

### Control valves for discharge / re-circulation used for water- or air-cooled condensers

- Three-way design
- Kvs value adjustable in gate B
- Plug can be rotated 80°
- Vacuum-resistant on re-circulation side
- Re-circulation plug assy cavitation resistant

**Technical data**

<b>Nominal diameter</b>	DN 50 ... 150	
<b>Nominal pressure</b>	PN 16 ... 40	
<b>Body materials</b>	EN-GJS-400-18-LT	(max. PN 25)
	GP240GH	(max. PN 40)
	GX5CrNiMo19-11-2	(max. PN 40)
<b>Flanges</b>	According to DIN 2501; EN 1092-1 and EN 1092-2 Different flanges on request	
<b>Stem packing</b>	Chevron rings PTFE-graphite	(max. 250 °C)
	Stuffing box pure graphite	(max. 530 °C medium dependent)
	With "TA-Luft" (MV 5341)	(max. 400 °C)
<b>Trim variations</b>	Diverting plug to control flow / re-circulation	(linear)
	Stem + Seat 1.4571	
	Parabolic plug 1.4122	
	Perforated plug 1.4122, 1.4122 hardened	
	Others on request	
<b>Seat leakage</b>	According to DIN EN 1349, Class IV	
<b>Max. press / temp.</b>	According to DIN EN 1092	
<b>Approvals</b>	ATEX ( PV...) DGRL (MV..., PV...)	

# ACTUATORS

- Electric actuators
- Pneumatic actuators





## Series

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REact 15 E

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### Electric actuator for modulating control and on/off valves

- Control via 3 point step
- Force switches in both directions
- Limit switch for open position (stem retracted)
- Handwheel
- Protection rating IP 65
- Mechanical stroke indicator
- No overrun and overload protected

### Options:

- Spring clamp connection terminals
- 2 freely selectable limit switches
- Anti condensation heater
- Feedback potentiometer
- Feedback transducer 2 or 3-Wire
- Digital valve positioner



## Technical data

<b>Operating force</b>	1.5 kN		
<b>Closing force</b>	1.7 kN		
<b>Stroke</b>	Max. 35 mm		
<b>Positioning speed</b>	0.38 mm/s		
<b>Power consumption</b>	13.2 VA		
<b>Isolation Class</b>	B		
<b>Motor voltage</b>	24 V AC - 50 / 60 Hz*	115 V AC - 50 / 60 Hz*	230 V AC - 50 / 60 Hz*
<b>Motor rating standard</b>	S3 - 70 %	S3 - 50 %	S3 - 60 %
<b>Limit switches</b>	1 Limit switch		
<b>Protection rating</b>	IP 65, DIN VDE 0470		
<b>Ambient temperature</b>	-20 °C to 70 °C		
<b>Mounting position</b>	Any, except upside down		
<b>Gear lubricant</b>	Divinol Fett Central, NIGI Class 0		
<b>Cable glands</b>	3 x M16		
<b>Weight</b>	4,2 kg		

\* For operation at 60 Hz the speed and power consumption increases by 20 %

## Options

<b>Limit switches</b>	2 freely selectable, Additional circuit board is necessary Contact rating max. 5 A, 250 V		
<b>Feedback potentiometer</b>	10 kΩ 5 kΩ 1 kΩ		
<b>Feedback transducer</b>	MU 4522, 3-Wire	0(4) – 20 mA	
	MU 4524, 2-Wire	0(4) – 20 mA	
<b>Digital valve positioner</b>	RE 3447		
	Input	0(4) – 20 mA respectively 0(2) – 10 V	
	Output	0(4) – 20 mA	
<b>Anti condensation heater</b>	24 V, 115 V, 230 V, 3 W		



ST 5112

## Series

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 ST 5112-32
 

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 ST 5112-33
 

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 ST 5112-34
 

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## Electric actuator for modulating control and on / off valves

- Control via 3 point step
- Force switches in both directions
- 2 freely selectable limit switches
- Handwheel
- Protection rating IP 65
- Mechanical stroke indicator
- No overrun and overload protected

## Options:

- Spring clamp connection terminals
- Anti condensation heater
- Feedback potentiometer
- Feedback transducer 2 or 3-Wire
- Digital valve positioner
- Bus system (Profibus DP, CANopen)
- Hydraulic fail close unit

## Technical data

Type ST 5112	-32	-33	-34
<b>Operating force</b>	2.8 kN	2.8 kN	2.5 kN
<b>Closing force</b>	3.2 kN	3.2 kN	3.0 kN
<b>Stroke</b>	Max. 40 mm		
<b>Speed</b>	0.26 mm/s	0.69 mm/s	1.04 mm/s
<b>Power consumption</b>	11 VA	15 VA	18 VA
<b>Motor voltage</b>	24 V DC, 24 V, 115 V, 230 V, 50 / 60 Hz*		
<b>Isolation Class</b>	B		
<b>Motor rating standard</b>	S4 - 80 % ED 1200 c/h DIN VDE 0530 Switching frequency short term 2 pro sec.		
<b>Limit switches</b>	2 Force switches Contact rating max. 4 A, 250 V 2 Limit switches, freely selectable Contact rating max. 4 A, 250 V		
<b>Protection rating</b>	IP 65, DIN VDE 0470		
<b>Ambient temperature</b>	-20 °C to 70 °C		
<b>Mounting position</b>	Any, except upside down		
<b>Gear lubricant</b>	Divinol Fett Central, NIGI Class 0		
<b>Cable glands</b>	4 x M16		
<b>Weight</b>	5 kg		

\* For operation at 60 Hz the speed and power consumption increases by 20 %

## Options

<b>Feedback potentiometer</b>	Max. 2	1 kΩ, 5 kΩ, 10 kΩ
<b>Tandem version</b>		
<b>With TÜV component mark</b>	Max. 2	1 kΩ, 5 kΩ
<b>Feedback transducer</b>	MU 4522, 3-Wire	0(4) – 20 mA
	MU 4524, 2-Wire	0(4) – 20 mA
<b>Digital valve positioner</b>	RE 3447	
	Input	0(4) – 20 mA respectively 0(2) – 10 V
	Output	0(4) – 20 mA respectively 0(2) – 10 V
<b>CAN-Bus system</b>	BS 4591	
<b>CANopen</b>		
<b>Profibus DP</b>	BS 4581	
<b>Anti condensation heater</b>	24 V, 115 V, 230 V, 8 W	

Other options available on request



## Series

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 ST 5113-51
 

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 ST 5113-53
 

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 ST 5113-35
 

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 ST 5113-15
 

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 ST 5113-07
 

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 ST 5113-34
 

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 ST 5113-14
 

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 ST 5113-06
 

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### Electric actuator for modulating control and on / off valves

- Control via 3 point step
- Open and closed limit switches
- 2 freely selectable limit switches
- Handwheel
- Protection rating IP 65
- Mechanical stroke indicator
- No overrun and overload protected

### Options:

- Spring clamp connection terminals
- Anti condensation heater
- Feedback potentiometer
- Feedback transducer 2 or 3-Wire
- Digital valve positioner
- Bus system (Profibus DP, CANopen)
- Hydraulic fail close unit
- 3 Phase hybrid motor starter

## Technical data

Type ST 5113-	-51	-53	-35	-15	-07	-34	-14	-06
<b>Operating force</b>	6 kN							
<b>Stroke</b>	Max. 60 mm							
<b>Speed</b>	0.19 mm/s	0.28 mm/s	0.44 mm/s	0.88 mm/s	1.64 mm/s	0.44 mm/s	0.88 mm/s	1.64 mm/s
<b>Power consumption</b>	36 VA	18 VA	46 VA	46 VA	80 VA	38 VA	48 VA	76 VA
<b>Motor voltage</b>	24 V DC, 24 V, 115 V, 230 V, 50 / 60 Hz*					3 ~ 400 V, 50 / 60 Hz*		
<b>Motor rating standard</b>	Switching frequency short term 2 pro sec.							
<b>Limit switches</b>	4 Limit switches Contact rating max. 6.5 A, 250 V							
<b>Protection rating</b>	IP 65, EN 60529 (DIN VDE 0470-1)							
<b>Ambient temperature</b>	-20 °C to 60 °C							
<b>Mounting position</b>	Any, except upside down							
<b>Cable glands</b>	4 x M 20							
<b>Weight</b>	10 kg							

\* For operation at 60 Hz the speed and power consumption increased by 20 %

## Options

<b>Limit switches</b>	2 freely selectable Contact rating max. 6.5 A, 250 V	
<b>Feedback potentiometer Tandem version With TÜV component mark</b>	Max. 2	1 k $\Omega$ , 5 k $\Omega$ , 10 k $\Omega$
<b>Feedback transducer</b>	MU 4522, 3-Wire MU 4524, 2-Wire	0(4) – 20 mA 0(4) – 20 mA
<b>Digital valve positioner</b>	RE 3447 + Hybrid-Starter** Input Output	0(4) – 20 mA respectively 0(2) – 10 V 0(4) – 20 mA
<b>CAN-Bus system CANopen</b>	BS 4591	
<b>Profibus DP</b>	BS 4581	
<b>Anti condensation heater</b>	24 V, 115 V, 230 V, 8 W	
<b>** Hybrid-Starter</b>	3 phase hybrid motor starter with electronic reversing contactor (needed for three phase actuators in combination with digital valve positioner RE 3447)	

Other options available on request



## Series

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ST 5114-55

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ST 5114-37

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ST 5114-17

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ST 5114-54

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ST 5114-36

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ST 5114-16

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## Electric actuator for control and on / off valves

- Control via 3 point step
- Open and closed force switches
- 3 Limit switches
- Handwheel
- Protection rating IP 65
- Mechanical stroke indicator
- No overrun and overload protected

## Options:

- Spring clamp connection terminals
- Anti condensation heater
- Feedback potentiometer
- Feedback transducer 2 or 3-Wire
- Digital valve positioner
- Bus system (Profibus DP, CANopen)
- Hydraulic fail close unit
- 3 Phase hybrid motor starter

## Technical data

Type ST 5114	-55	-37	-17	-54	-36	-16
<b>Operating force</b>	10 kN					
<b>Stroke</b>	Max. 80 mm					
<b>Speed</b>	0.28 mm/s	0.44 mm/s	0.88 mm/s	0.28 mm/s	0.44 mm/s	0.88 mm/s
<b>Power consumption</b>	46 VA	80 VA	80 VA	32 VA	66 VA	66 VA
<b>Motor voltage</b>	24 V DC, 24 V, 115 V, 230 V, 50 / 60 Hz*			3 ~ 400 V 50 / 60 Hz*		
<b>Motor rating standard</b>	Switching frequency short term 2 pro sec. 100 % ED (-55 / -54) 50 % ED (-37 / -36 / -17 / -16)					
<b>Force switches</b>	2 Force switches + 1 Limit switch Contact rating max. 6.5 A, 250 V					
<b>Protection rating</b>	IP 65, EN 60529 (DIN VDE 0470-1)					
<b>Ambient temperature</b>	-20 °C to 60 °C					
<b>Mounting position</b>	Any, except upside down					
<b>Cable glands</b>	4 x M 20					
<b>Weight</b>	10,3 kg					

\*For operation at 60 Hz the speed and power consumption increased by 20 %

## Options

<b>Feedback potentiometer or Tandem version</b>	Max. 2	1 k $\Omega$ , 5 k $\Omega$ , 10 k $\Omega$
<b>With TÜV component mark</b>	Max. 2	1 k $\Omega$ , 5 k $\Omega$
<b>Feedback transducer</b>	MU 4522, 3-Wire MU 4524, 2-Wire	0(4) – 20 mA 0(4) – 20 mA
<b>Digital valve positioner</b>	RE 3447 + Hybrid-Starter** Input Output	0(4) – 20 mA respectively 0(2) – 10 V 0(4) – 20 mA
<b>CAN-Bus system CANopen</b>	BS 4591	
<b>Profibus DP</b>	BS 4581	
<b>Coil for feedback signal</b>	Discharge / re-circulation control	
<b>Anti condensation heater</b>	24 V, 115 V, 230 V, 8 W	
<b>** Hybrid-Starter</b>	3 phase hybrid motor starter with electronic reversing contactor (needed for three phase actuators in combination with digital valve positioner RE 3447)	

Other options available on request



ST 5106

## Series

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 ST 5106-20
 

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 ST 5106-60
 

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 ST 5106-61
 

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 ST 5116-20
 

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 ST 5116-60
 

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 ST 5116-61
 

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## Electric actuator for control and on / off valves

- Control via 3 point step
- Open and closed limit switches
- 2 freely selectable limit switches (only ST 5106)
- Handwheel
- Protection rating IP 65
- Mechanical stroke indicator

## Options:

- Anti condensation heater
- Feedback potentiometer
- Feedback transducer 2 or 3-Wire
- Digital valve positioner
- Bus system (Profibus DP, CANopen)
- Hydraulic fail close unit
- 3 Phase hybrid motor starter



## Technical data

Type ST 5106	-20	-60	-61
<b>Operating force</b>	15 kN		
<b>Stroke</b>	Max. 80 mm		
<b>Speed</b>	0.3 mm/s	0.9 mm/s	1.8 mm/s
<b>Power consumption</b>	180 VA		
<b>Brake approx.</b>	–	–	30 VA
<b>Motor voltage</b>	3 ~ 400 V 50 / 60 Hz* / 1 ~ 230 V 50 / 60 Hz* / 115 V		
Type ST 5116	-20	-60	-61
<b>Operating force</b>	20 kN		
<b>Stroke</b>	Max. 80 mm		
<b>Speed</b>	0.3 mm/s	0.85 mm/s	1.7 mm/s
<b>Power consumption</b>	180 VA		
<b>Brake approx.</b>	–	–	20 VA
<b>Motor voltage</b>	3 ~ 400 V 50 / 60 Hz*		
<b>Motor rating standard</b>	Switching frequency short term 2 pro sec. 50 % ED / 50 HZ 25 % ED / 60 HZ		
<b>Force switches</b>	2 Limit switches Contact rating max. 6 A, 250 V		
<b>Protection rating</b>	IP 55, DIN VDE 0470		
<b>Ambient temperature</b>	-20 °C to 60 °C		
<b>Mounting position</b>	Any, except upside down		
<b>Cable glands</b>	3 x M 20		
<b>Weight</b>	22 kg		

\*For operation at 60 Hz the speed and power consumption increased by 20 %

### Options

<b>Limit switches</b>	2 freely selectable Contact rating max. 6.5 A, 250 V	
<b>Feedback potentiometer or Tandem version</b>	Max. 2	1 kΩ, 5 kΩ, 10 kΩ
<b>Feedback transducer</b>	MU 4522, 3-Wire MU 4524, 2-Wire	0(4) – 20 mA 0(4) – 20 mA
<b>Digital valve positioner</b>	RE 3447 + Hybrid-Starter** Input Output	0(4) – 20 mA respectively 0(2) – 10 V 0(4) – 20 mA
<b>CAN-Bus system CANopen</b>	BS 4591	
<b>Profibus DP</b>	BS 4581	
<b>Anti condensation heater</b>	24 V, 115 V, 230 V, 8 W	
<b>** Hybrid-Starter</b>	3 phase hybrid motor starter with electronic reversing contactor (needed for three phase actuators in combination with digital valve positioner RE 3447)	

Other options available on request



ST 5143

## Series

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 ST 5143-35
 

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 ST 5143-15
 

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 ST 5143-07
 

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 ST 5143-34
 

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 ST 5143-14
 

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 ST 5143-06
 

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## Electric actuator for adjusting butterfly valves

- Control via 3 point step
- Open and closed limit switches
- 2 freely selectable limit switches
- Handwheel
- Protection rating IP 65
- Mechanical stroke indicator
- No overrun and overload protected

## Options:

- Spring clamp connection terminals
- Anti condensation heater
- Feedback potentiometer
- Feedback transducer 2 or 3-Wire
- Digital valve positioner
- Bus system (Profibus DP, CANopen)
- Hydraulic fail close unit
- 3 Phase hybrid motor starter

## Technical data

Type ST 5143	-35	-15	-07	-34	-14	-06
<b>Torque</b>	250 Nm	250 Nm	250 Nm	250 Nm	250 Nm	250 Nm
<b>Actuating time</b>	136 sec	68 sec	37 sec	136 sec	68 sec	37 sec
<b>Motor voltage</b>	Single-phase			Three-phase		
<b>Basic actuator ST 5113</b>	-35	-15	-07	-34	-14	-06

## Options

<b>Limit switches</b>	2 freely selectable Contact rating max. 6.5 A, 250 V	
<b>Feedback potentiometer</b>	Max. 2	1 k $\Omega$ , 5 k $\Omega$ , 10 k $\Omega$
<b>Tandem version</b>		
<b>With TÜV component mark</b>	Max. 2	1 k $\Omega$ , 5 k $\Omega$
<b>Feedback transducer</b>	MU 4522, 3-Wire MU 4524, 2-Wire	0(4) – 20 mA 0(4) – 20 mA
<b>Digital valve positioner</b>	RE 3447 + Hybrid-Starter** Input Output	0(4) – 20 mA respectively 0(2) – 10 V 0(4) – 20 mA
<b>CAN-Bus system</b>	BS 4591	
<b>CANopen</b>		
<b>Profibus DP</b>	BS 4581	
<b>** Hybrid-Starter</b>	3 phase hybrid motor starter with electronic reversing contactor (needed for three phase actuators in combination with digital valve positioner RE 3447)	

Other options available on request



ST 6160

### Series

ST 6115	120 cm <sup>2</sup>
ST 6135	280 cm <sup>2</sup>
ST 6160	530 cm <sup>2</sup>

### Special applications

ST 6135.B6-__-C5-M
ST 6135.B6-__-OX
ST 6160.A6-__-C5-M
ST 6160.A6-__-OX

### Pneumatic actuators for control and on/off valves

- Approved by German Technical Inspectorate (TÜV) as safety functional device for steam and water in heating systems.
- Spring closed or open
- Max. stroke 60 mm
- Max. air supply 6 bar
- Max. actuating force 10 kN
- Direct mounting of positioner with internal air supply
- Special applications possible
  - C5-M Marine air resistant
  - OX For oxygen as operating medium

## Technical data

Type	ST 6115		ST 6135		ST 6160	ST 6160	
	.A6-3S	.C6-4S	.B6-2G	.B6-6G	.A6-6G	.C6-3G	.C6-7G
<b>Diaphragm area</b>	120 cm <sup>2</sup>		280 cm <sup>2</sup>		530 cm <sup>2</sup>	530 cm <sup>2</sup>	
<b>Spring range (bar)</b>	0.9 ... 2.0	0.8 ... 2.4	0.2 ... 1.0	0.8 ... 3.0	0.8 ... 2.8	0.3 ... 1.3	0.7 ... 3.0
<b>Stroke</b>	20 mm	25 mm	35 mm		40 mm	60 mm*	
<b>Operating pressure (bar)</b>	Min. 2.2 Max. 6	Min. 2.6 Max. 6	Min. 1.2 Max. 6	Min. 3.2 Max. 6	Min. 3.0 Max. 6	Min. 1.5 Max. 6	Min. 3.2 Max. 6
<b>Actuator volume</b>	0.4 L <sub>N</sub>		1.7 L <sub>N</sub>		2.8 L <sub>N</sub>	3.6 L <sub>N</sub>	
<b>Ambient temperature</b>	-40 ... 80 °C					-20 ... 80 °C	
<b>Coating</b>	Acrylic						
<b>Weight</b>	3 kg		5 kg		12.5 kg	14 kg	
<b>Connection</b>	¼" NPT Female thread						
<b>Mounting position</b>	Any						

\*50 mm for direction of action « open »; spring range reduced

### Options

<b>Handwheel</b>	Mounted on top	
<b>Limit switches</b>	Contact rating max. 6 A, 400 V Protection IP 65	
<b>3 / 2-solenoid valve</b>	24 V DC, 24 V, 115 V, 230 V 50 / 60 Hz, EEx The safety function according to DIN EN 14597:2005-12 is only possible in combination with a solenoid valve which fulfills the requirements of the Mounted on top mentioned directive.	
<b>Positioners</b>		
<b>SRP 981</b>	0.2 ... 1.0 bar	max. 6 bar
<b>SRI 990</b>	4 – 20 mA	2-Wire
<b>SR 6136 (Sipart)</b>	4 – 20 mA	2 / 3 / 4-Wire
<b>SR TZIDC</b>	4 – 20 mA	2-Wire
<b>SR 1000 L</b>	4 – 20 mA	2-Wire
<b>SR 3300</b>	4 – 20 mA	2-Wire

Other options available on request

### Important note

The actuator needs in conjunction with the approval DIN EN 14597:2012-09 for failure free service, dry oil free instrument air

- Particle size 30 µm
- Pressure dewpoint 20 °C under ambient temperature



## Series

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ST 6175.B6-\_\_ 1000 cm<sup>2</sup>

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ST 6175.C6-\_\_ 1000 cm<sup>2</sup>

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### **Pneumatic actuators for control and on/ off valves**

- Actuating force max. 40 kN
- Spring closed or open
- Stroke max. 60 mm / 100mm
- Max air supply 6 bar

## Technical data

Type	.B6-2S	.B6-3D	.B6-5D	.B6-7D	.C6-3S	.C6-3D	.C6-5D	.C6-7D
<b>Diaphragm area</b>	1000 cm <sup>2</sup>							
<b>Spring range (bar)</b>	0.3 ... 0.9	0.7 ... 2.1	1.2 ... 3.4	1.6 ... 4.7	0.5 ... 1.4	0.8 ... 2.1	1.4 ... 3.4	1.9 ... 4.7
<b>Actuating force spring closed, closed position</b>	3 kN	7 kN	12 kN	16 kN	5 kN	8 kN	14 kN	19 kN
<b>Actuating force spring open, open position</b>	40 kN	32 kN	21 kN	10 kN	38 kN	32 kN	21 kN	10 kN
<b>Stroke</b>	60 mm				100 mm			
<b>Operating pressure (bar)</b>	Min. 1.1 Max. 6	Min. 2.3 Max. 6	Min. 3.6 Max. 6	Min. 4.9 Max. 6	Min. 1.6 Max. 6	Min. 2.3 Max. 6	Min. 3.6 Max. 6	Min. 4.9 Max. 6
<b>Actuator volume</b>	0.8 ... 5.8 L <sub>N</sub>				0.8 ... 9 L <sub>N</sub>			
<b>Ambient temperature</b>	-40 ... 80 °C							
<b>Coating</b>	Acrylic							
<b>Weight</b>	35 kg	37 kg	39 kg	41 kg	45 kg	48 kg	54 kg	60 kg
<b>Connection</b>	¾" NPT Female thread							
<b>Mounting position</b>	Any							
<b>Options</b>								
<b>Handwheel</b>	Mounted on top							
<b>Limit switches</b>	Contact rating max. 6 A, 400 V Protection IP 65							
<b>3 / 2 way solenoid valve</b>	24 V DC, 24 V, 115 V, 230 V 50 / 60 Hz, EEx							
<b>Solenoid valve</b>	The safety function according to DIN EN 14597:2005-12 is only possible in combination with a solenoid valve which fullfills the requirements of the Mounted on top mentioned directive.							
<b>Positioners</b>								
<b>SRP 981</b>	0.2 ... 1.0 bar		max. 6 bar					
<b>SRI 990</b>	4 – 20 mA		2-Wire					
<b>SR 6136 (Sipart)</b>	4 – 20 mA		2 / 3 / 4-Wire					
<b>SR TZIDC</b>	4 – 20 mA		2-Wire					
<b>SR 1000 L</b>	4 – 20 mA		2-Wire					
<b>SR 3300</b>	4 – 20 mA		2-Wire					

Other options available on request

### Important note

The actuator needs in conjunction with the approval DIN EN 14597:2012-09 for failure free service, dry oil free instrument air

- Particle size 30 µm
- Pressure dewpoint 20 °C under ambient temperature



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